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Feature Article - Experimental Price Indexes for Age Pension Households: an Update

INTRODUCTION

With the introduction of the 13th Series in respect of September quarter 1998, the Australian Consumer Price Index (CPI) has been designed specifically to provide a general measure of price inflation for all private households in the eight capital cities. Prior to this, the CPI was designed to measure changes in the living costs of capital city wage and salary earner households only.

The historical limitation of the population coverage of the CPI often led to questioning of how well the CPI captured changes in the living costs of other household types.

This article presents an experimental price index constructed to measure changes in the living costs of age pensioner households and compares this with the official CPI. The comparison spans a period of almost eighteen years - from September quarter 1980 to June quarter 1998. It updates and improves upon previous studies released in 1992 (Information Paper **The Australian Consumer Price Index: Feasibility of Constructing Price Indexes for Special Population Groups**, ABS Cat. No. 6445.0) and in the July 1993 and September 1995 editions of **Australian Economic Indicators** (ABS Cat. No. 1350.0).

As announced at the time of the introduction of the 13th Series CPI, the ABS plans to develop analytical indexes specifically designed to measure changes in the living costs for a number of subgroups in the population. These new indexes are expected to be published for the first time during 2000.

ASSUMPTIONS AND METHODOLOGY

Construction of a price index of this type requires two inputs: item prices (or measures of price change) and a set of item weights (or measures of relative importance of items).

In constructing the experimental index it has been assumed that the CPI price samples provide measures of price change at the CPI expenditure class level for each capital city relevant to age pensioner households. Although age pensioners can face different prices than the population at large - largely due to age pensioner discounts for government provided services such as public transport fares - the movement in these prices is still likely to be similar to the movement in the non-discounted prices.

Weights for the age pensioner index were calculated as follows: average weekly expenditure data for age pensioner households in each capital city were obtained from the 1988-89 Household Expenditure Survey (HES). These expenditures were aggregated to the expenditure classes used in the 12th series CPI (from June quarter 1992). Adjustments were made for under reporting of spending on tobacco and alcohol, and expenditure aggregates were adjusted to June

quarter 1992 prices using movements in the relevant CPI capital city expenditure class indexes. The resulting average weekly household expenditures were converted to weight form by expressing expenditure on each expenditure class as a percentage of total expenditure.

This update of the age pensioner index differs slightly from the previous update in that, from December quarter 1986, indexes have been constructed at the individual capital city level and then weighted together to produce the index for the eight capital cities. This index has been linked to the previously compiled age pensioner index at December quarter 1986 to produce a continuous series from September quarter 1980 to June quarter 1998.

For the purpose of deriving expenditure data from the HES, age pensioner households were defined as capital city households with the age pension as the largest source of income and weekly household income in 1988-89 of less than \$175 in the case of one person households or \$290 in the case of two person households.

To facilitate longer-term comparison, the experimental age pensioner index and the CPI were re-referenced to a common reference base of September quarter 1980=100.0. These indexes are presented at Appendix 1.

WEIGHTING PATTERNS

Table 1 shows average weekly expenditures at the major commodity group level, for age pensioner households and wage and salary earner households at June quarter 1992 prices. (The selection of a June quarter 1992 pricing basis facilitates comparison with published information on the official 12th series CPI which was linked at June quarter 1992.)

TABLE 1: ESTIMATED AVERAGE WEEKLY EXPENDITURE BY MAJOR COMMODITY GROUP AT JUNE QUARTER 1992 PRICES

Expenditure category	Experimental age pensioner index	CPI
	\$	\$
Food	53.17	125.02
Clothing	14.51	42.74
Housing	30.93	108.48
Household equipment and operation	44.20	125.34
Transportation	24.65	108.94
Tobacco and alcohol	12.78	51.00
Health and personal care	20.48	46.74
Recreation and Education	15.85	74.03
Total	216.57	682.29

(a) As defined for the purpose of constructing the 12th series CPI, ie, those capital city households that obtain at least three-quarters of their total income from wages and salaries excluding the top 10 per cent (in terms of income) of such households.

Table 1 shows that there are significant differences in absolute expenditures between the two population groups, with wage and salary earner households spending significantly more than age pensioner households on all major commodity groups. However, in studying the behaviour of alternative price indexes, it is not the differences in absolute expenditures that are important but the differences in the proportion of total expenditure accounted for by each category; this is reflected in the weights. Table 2 presents the expenditure weights used to construct the age pensioner index and the equivalent weights used to construct the 12th series CPI.

TABLE 2: EXPENDITURE WEIGHTS BY MAJOR COMMODITY GROUP AT JUNE QUARTER 1992 PRICES

Expenditure category	Experimental age pensioner index	CPI
	%	%
Food	24.55	18.32
Clothing	6.70	6.26
Housing	14.28	15.90
Household equipment and operation	20.41	18.37
Transportation	11.38	15.97
Tobacco and alcohol	5.90	7.48
Health and personal care	9.46	6.85
Recreation and Education	7.32	10.85
Total	100.0	100.0

Table 2 shows notable differences in weighting patterns. It illustrates that age pensioner households allocated a higher proportion of their expenditures to food, clothing, household equipment and operation and health and personal care commodities than did the reference CPI population. A higher share of wage and salary earner households' expenditures went to housing, transportation, tobacco and alcohol and recreation and education. Variations in the expenditure patterns reflect income and demographic differences between the two population groups. For example wage and salary earner households on average have a higher disposable income than age pensioner households, are more likely to have dependent children and have a higher incidence of motor vehicle ownership. On the other hand, age pensioner households have a higher incidence of outright home ownership (ie are less likely to have a mortgage).

TABLE 3: EXPENDITURE WEIGHTS FOR SELECTED EXPENDITURE CLASSES AT JUNE QUARTER 1992 PRICES

Expenditure category	Experimental age pensioner index	CPI
	%	%
Take away foods	1.32	3.14
Mortgage interest charges	0.10	6.61
Consumer credit charges	0.57	2.50
Local government rates and charges	4.23	2.19
House repairs and maintenance	4.60	1.83
Electricity	3.10	1.75
Motor vehicles	1.88	3.99
Pharmaceuticals	2.15	0.82
Education fees	0.01	1.56

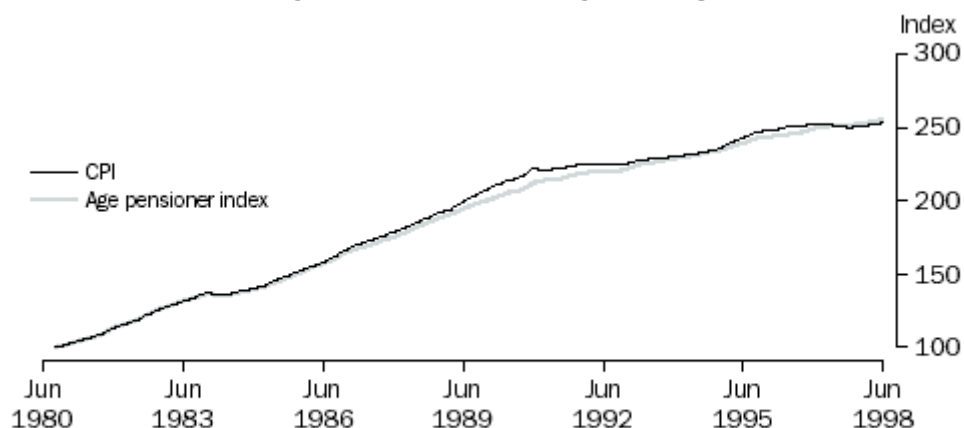
Differences in expenditure patterns are also noticeable at the expenditure class level. Weights for selected expenditure classes where there are substantial differences between the two population groups are shown in Table 3. These tend to further highlight differences in the income and demographics of the two populations.

OUTCOMES AND DISCUSSION

Chart 1 shows index levels for both the experimental index for age pensioner households and the CPI from September quarter 1980 to June quarter 1998. Despite quite marked differences in

weighting patterns, the chart illustrates that the differences in index outcomes were almost imperceptible. Over the whole period, the age pensioner index rose by 155.5% while the CPI increased by 153.1% - a relatively small difference over an eighteen year period.

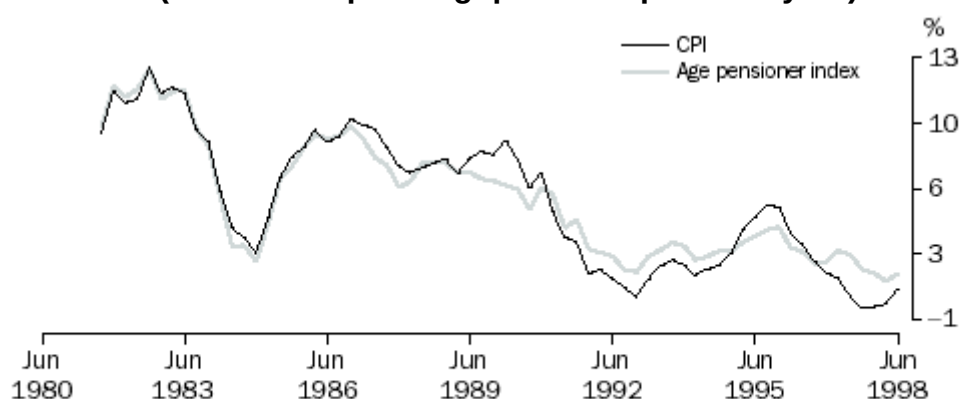
CHART 1: INDEX NUMBERS



Source: ABS (Cat. no. 6401.0) and Prices Development Section, ABS Quarterly data.

While the change in each index over the entire period of the study is similar, differences in behaviour do emerge over shorter comparison periods. These differences are most readily identified by comparing annual percentage rates of change in the two series (constructed as the percentage change from the corresponding quarter of the previous year) as shown in Chart 2.

CHART 2: PERCENTAGE CHANGE
(from corresponding quarter of previous year)



Source: ABS (Cat. no. 6401.0) and Prices Development Section, ABS Quarterly data.

There are two particularly distinct periods identifiable from the above chart. The first, running up to and including December quarter 1986, is characterised by the behaviour of the two series being almost indistinguishable; while the period from March quarter 1987 is characterised by discernible but not consistent differences. It is no coincidence that March quarter 1987 marks a change in the relative behaviour of the two series - this represents the quarter that mortgage interest and consumer credit charges were first introduced to the CPI.

This illustrates the point that the extent to which differences in expenditure patterns influence the behaviour of price indexes depends on the variation in individual price movements. If prices of all items move at exactly the same rate then differences in expenditure patterns are irrelevant. The more divergent price movements become, the greater the role of expenditure patterns in measuring the aggregate impact of price change.

Movements in interest rates are often large and against the trend of current price change. Therefore, differences in the relative importance of interest charges across population groups are likely to result in differences in measures of the change in living costs. The observable differences between the two index series post December quarter 1986 are largely attributable to mortgage interest and consumer credit charges which have a combined weight in the age pensioner index of only 0.67% compared with 9.11% in the CPI (see Table 3 above).

CONCLUSION

This study confirms that price indexes constructed to measure changes in living costs for different household types are unlikely to differ significantly over periods of time spanning and extending beyond the business cycle. Over shorter time periods, however, significant differences in index behaviour may emerge.

The inclusion of mortgage interest and consumer credit charges in the CPI from March quarter 1987 resulted in a CPI better suited to its then principal purpose of measuring changes in the living costs of employee households. A consequence was that the CPI became a less suitable measure of shorter-term changes in the living costs of other household types.

As a result of a review of the CPI undertaken during 1997, the ABS decided to change the principal objective of the CPI to one of measuring price inflation for the household sector as a whole. This resulted in some significant design changes being introduced from September quarter 1998. The most noticeable of these changes was the exclusion of mortgage interest and consumer credit charges from the index and the inclusion of net expenditure on the acquisition of dwellings (excluding land). A consequence of this most recent change is that, despite not being specifically designed for this purpose, the CPI is now assessed as providing a better measure of changes in the living costs of age pensioner households.

APPENDIX

APPENDIX 1: EXPERIMENTAL PRICE INDEX FOR AGE PENSIONER HOUSEHOLDS AND THE CPI (a)

Quarter	Expenrimental age pensioner index	CPI	Quarter	Experimental age pensioner index	CPI
1980 September	100.0	100.0	1990 March	202.8	211.1
December	102.3	102.1	June	206.4	214.4
1981 March	104.7	104.6	September	207.6	216.1
June	106.7	106.9	December	212.7	221.8
September	109.3	109.0	1991 March	214.3	221.3
December	114.1	113.6	June	214.5	221.8
1982 March	116.1	115.7	September	216.7	223.0
June	118.8	118.4	December	218.7	225.1
September	122.8	122.6	1992 March	219.9	225.1
December	126.4	126.2	June	219.7	224.5
1983 March	129.1	128.9	September	220.3	224.7
June	132.2	131.6	December	222.1	225.7
September	134.1	133.9	1993 March	225.2	227.8
December	136.9	137.0	June	225.8	228.7
1984 March	136.2	136.4	September	227.2	229.7
June	136.1	136.8	December	228.6	230.1
September	138.1	138.5	1994 March	230.2	231.0
December	139.8	140.6	June	231.2	232.6
1985 March	141.9	142.5	September	233.3	234.1
June	145.0	145.8	December	234.7	236.0
September	148.1	149.2	1995 March	237.5	240.0

	December	151.3	152.1		June	239.3	243.1
1986	March	154.6	155.6		September	242.3	246.0
	June	157.5	158.2		December	244.0	247.9
	September	161.2	162.3	1996	March	244.4	249.0
	December	165.4	166.9		June	245.6	250.6
1987	March	168.0	170.3		September	247.2	251.3
	June	169.6	172.8		December	249.2	251.7
	September	172.9	175.7	1997	March	251.0	252.1
	December	175.5	178.9		June	251.8	251.5
1988	March	178.7	182.0		September	251.4	250.4
	June	182.2	185.1		December	253.0	251.0
	September	185.8	188.7	1998	March	253.7	251.7
	December	188.4	192.5		June	255.5	253.1
1989	March	191.0	194.4				
	June	194.7	199.2				
	September	197.9	203.8				
	December	200.5					

(a) Base: September quarter 1980 = 100.00.

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